

Date: Tuesday, 09/09/2008 2:16:40 PM  
 User: Julie Lecocq

## Process Sheet

|                                    |  |                           |                   |
|------------------------------------|--|---------------------------|-------------------|
| <b>Customer</b> :                  | CU-DAR001 Dart Helicopters Services  | <b>Drawing Name</b> :     | MID TUBE ASSEMBLY |
| <b>Job Number</b> :                | 41751  |                           |                   |
| <b>Estimate Number</b> :           | 10469  |                           |                   |
| <b>P.O. Number</b> :               |  | <b>Part Number</b> :      | D3391023          |
| <b>This Issue</b> :                | 09/09/2008   | <b>S.O. No.</b> :         |                   |
| <b>Prsht Rev.</b> :                | NC   | <b>Drawing Number</b> :   | D3391 REV G       |
| <b>First Issue</b> :               | //   | <b>Project Number</b> :   | N/A               |
| <b>Previous Run</b> :              | 41750  | <b>Drawing Revision</b> : | G                 |
|                                    | <b>Type</b> :  | <b>Material</b> :         |                   |
|                                    | SKIDTUBES  | <b>Due Date</b> :         | 20/09/2008        |
| <b>Written By</b> :                |  | <b>Qty:</b>               | 1                 |
| <b>Checked &amp; Approved By</b> : | JLD 08.9.09  | <b>Um:</b>                | Each              |
| <b>Comment</b> :                   | Est. A 05.10.20 New Issue KJ/EC<br>Est. B 06.02.10 ECN773 dwg rev.D EC<br>est C 07.03.20 rev F dwg EC<br>est D 07.03.28 re-format EC<br>est E 07.10.31 ecn 1053P EC<br>Est Rev:F ECN 1056 07-11-13 DD verified by: EC<br>Est Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC |                           |                   |

## Additional Product

Job Number:



|                |                              |                      |
|----------------|------------------------------|----------------------|
| <b>Seq. #:</b> | <b>Machine Or Operation:</b> | <b>Description :</b> |
|----------------|------------------------------|----------------------|

|     |           |                    |
|-----|-----------|--------------------|
| 1.0 | D25001100 | Skidtube Extrusion |
|-----|-----------|--------------------|



**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

SKIDTUBE EXTRUSION

Pick:

|     |             |             |        |
|-----|-------------|-------------|--------|
| Qty | Part Number | Description | Batch  |
| 1   | D2500-1-100 | Extrusion   | D37065 |

JD 8-9-29

|     |          |                   |
|-----|----------|-------------------|
| 2.0 | D3391021 | Fwd Tube Assembly |
|-----|----------|-------------------|



**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Fwd Tube Assembly

Batch: B41836 ① # 8-10-22

|     |             |                       |
|-----|-------------|-----------------------|
| 3.0 | SKIDTUBES 1 | SKIDTUBESS RESOURCE 1 |
|-----|-------------|-----------------------|



**Comment:** LANDING GEAR RESOURCE 1

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

4-Open saddles and GHW holes to Ø0.375" except for fwd saddle hole of detail "J"

8-9-29  
 JD 8-9-29

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

Date: Tuesday, 09/09/2008 2:16:40 PM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 41751

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

5-Remove .030" from Fwd indexing Ridge as per Dwg D3391

6-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

7-Deburr

8-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,

9-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"

10-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391

11-Open .375" holes to .438" \*\*\*do not open fwd saddle holes\*\*\*

12-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)

13- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021

14- Transfer drill 2 wearplate holes into D3391-021 using DT8217, locating from two previously drilled holes, drill remaining wearplate holes into D3391-021.

15- Locating from two fwd wearplate holes drillol remaining 6 wearplte holes in D3391-021 using DT8937

16- Open 2 fwd wearplate holes in D3391-023 to .250" dia.

17- Open 12 wearplate holes in D3391-021 to 0.297" dia.

18-Deburr and blow out all chips from inside tube

4.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

JAD8-9-H  
8-9-29

8-10-22

P70

S 09/10/22 (70)

8-10-22

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: D3391-023 PAR #: N/A Fault Category: Prod - Feedback NCR: Yes No DQA: NA Date: 08-12-01  
 (D412-742-043) Resolution: Scrap Disposition: Scrap QA: N/C Closed: NA Date: 08/12/02

| NCR: <u>41751</u> |      | WORK ORDER NON-CONFORMANCE (NCR)   |                             |  |                           |                           |                       |                          |
|-------------------|------|--|-----------------------------|--|---------------------------|---------------------------|-----------------------|--------------------------|
| DATE              | STEP | Description of NC<br>Section A   | Corrective Action Section B |  |                           | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|                   |      |  | Initial<br>Chief Eng        | Action Description<br>Chief Eng  | Sign &<br>Date            |                           |                       |                          |
| 08-09-23          | 3.6  | The inner index ridges on top of bottom 2 each end are too long. Ground down from .800 to .730 in from the end, should be .700.<br>Employee had been trained. R.C.: Lack of Attention. | <u>Q41412</u>               | Scrap & destroy tube. Replace on this w/o B 37065 Qty of 1<br>Re-train Employee: record on the Job training sheet. | <u>Q41412</u><br>08-09-23 | <u>Q41412</u>             | <u>Q41412</u>         | 08-09-23                 |
|                   |      |  |                             |  |                           |                           |                       |                          |
|                   |      |  |                             |  |                           |                           |                       |                          |

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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 41751

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M 8-10-23

7.0

D33891

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEB

Pick:

Qty Part Number Description

1 D3389-1 Web

A/R Sikaflex-241/-291

Sikaflex expire date:

Start: 8-10-23 Time: 7:50

Finish: 8-10-24 Time: 7:00 AM

Batch

341833

17109338

2-11-1

M 8-10-23

8.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open float bag holes as per dwg

2-C'sink float bag holes as per dwg

3- Prepare tube for welding

4-Bond web in place as per Dwg D3391 & QSI 015.

Adhere for 12 hours)

M 8-10-23

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

8-08-24 (40)

10.0

D36811

Spacer



Comment: Qty.: 5.0000 Each(s)/Unit Total : 5.0000 Each(s)

SPACER

batch: 41248

M 8-10-24 (5)

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

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Drawing Name: MID TUBE ASSEMBLY

Job Number: 41751

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Weld crossbolt spacer as per dwg D3391 & QSI 004

A/R M10923

RF 08/10/27

12.0

QC10

VISUAL INSPECTION OF GROUND WELDS



Comment: VISUAL INSPECTION OF GROUND WELDS

S 08/10/28 (X)

13.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 08/10/28 (X)

14.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

8:50  
320 OF  
9:20

M109152

M-1 08/10/30

(X)

15.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

08-10-19 (X)

16.0

D35911

Bushing



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Bushing

B43172

FL

17.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: SKIDTUBESS RESOURCE 1

1- insert D3391-021 into D3391-23

2- insert T-pins into first and third fwd saddle holes

3- ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to 0.500" as per DSI 9364

4- remove T-pins and locate DT9415 from first and third crossbolt hole using T-pins and clekos

5- ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". Remove DT9415

M-1  
FL 08/11/20

(1)

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



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## Process Sheet

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Drawing Name: MID TUBE ASSEMBLY

Job Number: 41751

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

6- deburr, re-alodine and blow out chips

7- press fit D3591-1 spacers using DT9416 starting from 0.500" side

ML/FB  
08/11/20

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5 08/11/20 (A)

19.0

ALS41032130

Insert



Comment: Qty.: 22.0000 Each(s)/Unit Total: 22.0000 Each(s)

INSERT

batch: M1105819

or equivalent

per QSI 017

MS

20.0

ALS41032225

Insert



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)

INSERT

batch:

or equivalent

per QSI 017

N/A E

21.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg

MS 08.11.

22.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5 08/11/20 (A)

23.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Tow Cap Assembly

Pick:

Qty

Part Number

Description

Batch

1

D3401-041

Tow Cap

336216

NA

MS 08.11.20 (A)

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 41751

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

D356413

Wearshoe



*W*



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
WEARSHOE

*S 8/11/20*

25.0

D356613

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
GASKET

*W S 8/11/20*

26.0

D36721

Phenolic Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
PHENOLIC WASHER

*W S 8/11/20*

27.0

AN3C4A

BOLT



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Bolt

Pick:

Qty

Part Number

Description

Batch

4

AN3C4A

Bolt

*W 109431*

*W*

28.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

washer

*W 109798*

*W*

29.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Install tow Cap as per Dwg D3391

Identify as D3391-021

*W 08-11-20*

*(X)*

30.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Inspect thread of each insert using DT8821

*S 08/11/20 (40)*

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |  |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|--|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |  |
|      |      |                    |    |      |     |                                     |                          |  |
|      |      |                    |    |      |     |                                     |                          |  |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                                |                                 |                |                           |                       |                          |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |

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Drawing Name: MID TUBE ASSEMBLY

Job Number: 41751

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

31.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location:

*RRR 41688* *Ch Supo*

32.0

QC21

FINAL INSPECTION/W/O RELEASE



*08/11/26* *JJ*

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



*CMF 08-11-26*

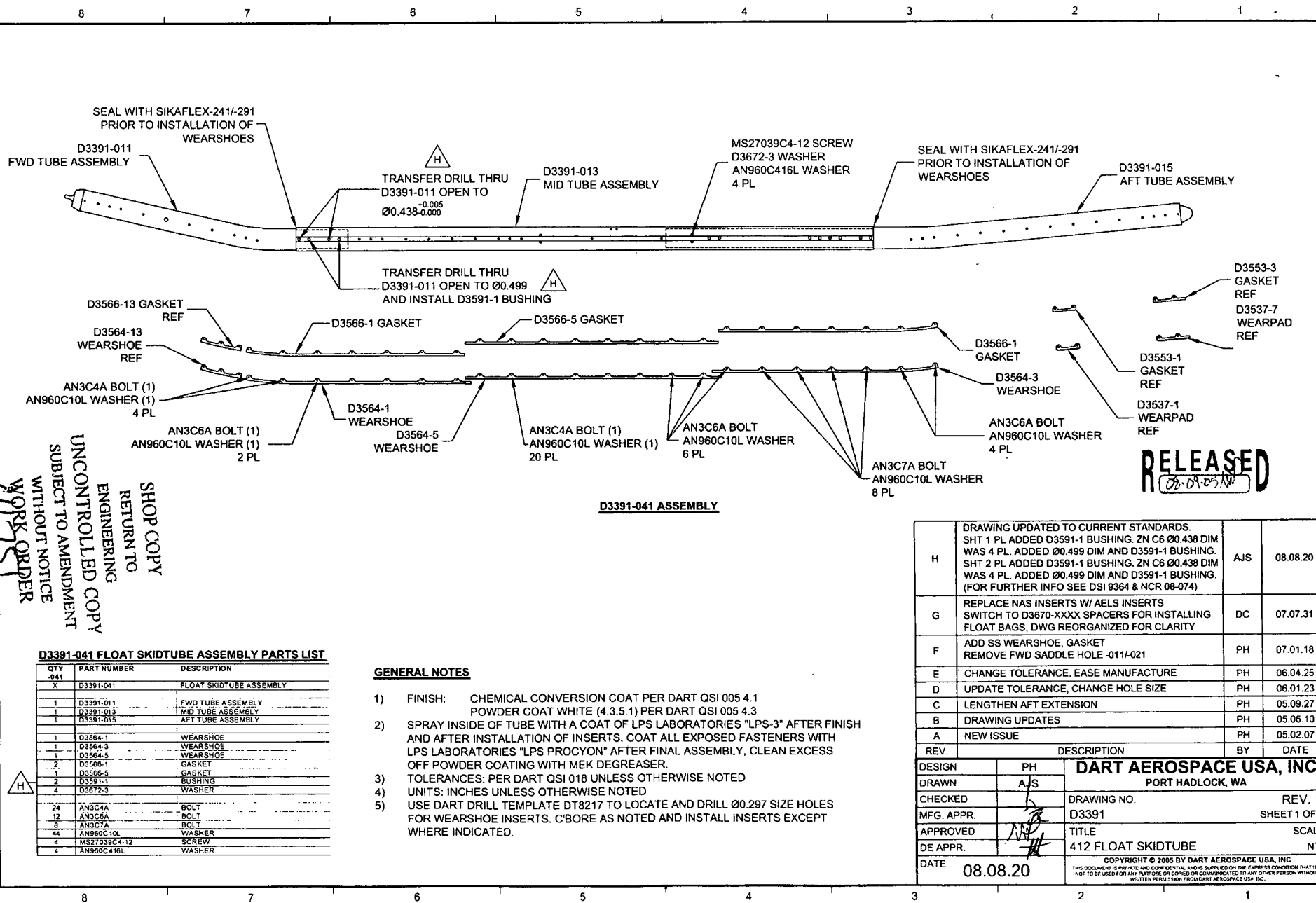
| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



NO. 1175  
 WORK ORDER  
 WITHOUT NOTICE  
 SUBJECT TO AMENDMENT  
 UNCONTROLLED COPY  
 ENGINEERING  
 RETURN TO  
 SHOP COPY

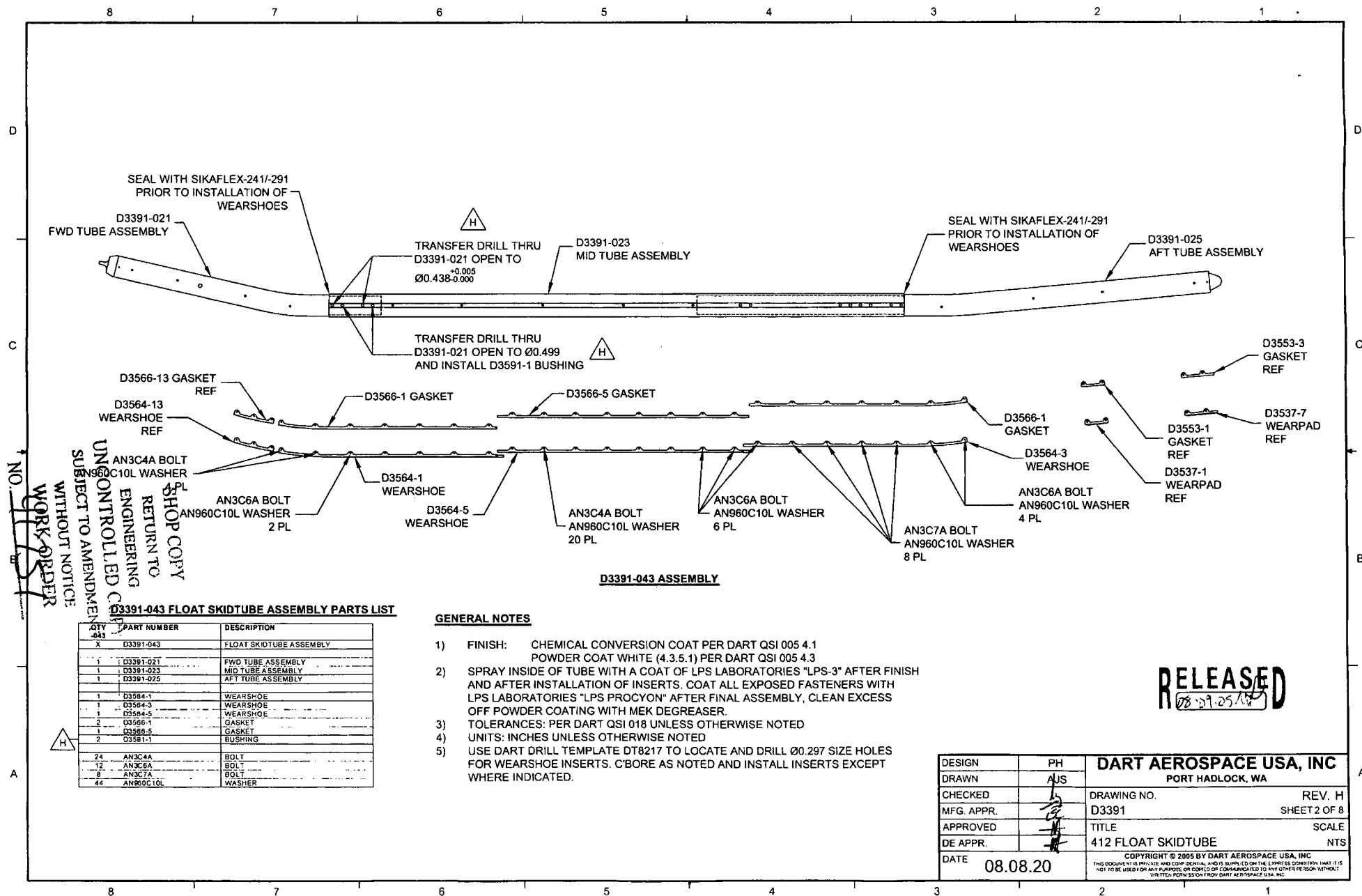
# D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER  | DESCRIPTION             |
|-----|--------------|-------------------------|
| 1   | D3391-041    | FLOAT SKIDTUBE ASSEMBLY |
| 1   | D3391-011    | FWD TUBE ASSEMBLY       |
| 1   | D3391-013    | MID TUBE ASSEMBLY       |
| 1   | D3391-015    | AFT TUBE ASSEMBLY       |
| 1   | D3564-1      | WEARSHOE                |
| 1   | D3564-3      | WEARSHOE                |
| 1   | D3564-5      | WEARSHOE                |
| 2   | D3566-1      | GASKET                  |
| 1   | D3566-5      | GASKET                  |
| 2   | D3591-1      | BUSHING                 |
| 4   | D3672-3      | WASHER                  |
| 24  | AN3C4A       | BOLT                    |
| 12  | AN3C6A       | BOLT                    |
| 8   | AN3C7A       | BOLT                    |
| 44  | AN960C10L    | WASHER                  |
| 4   | MS27039C4-12 | SCREW                   |
| 4   | AN960C416L   | WASHER                  |

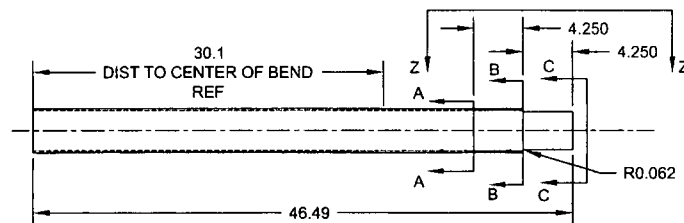
## GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

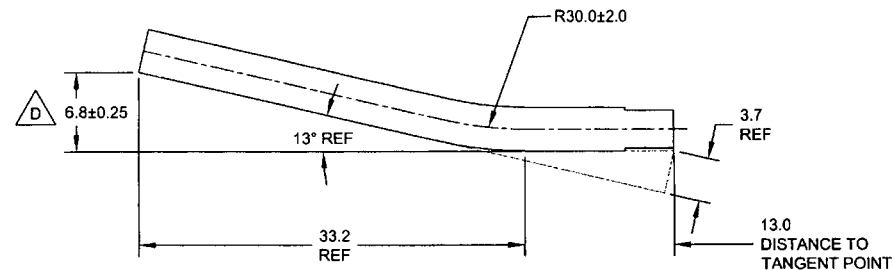
|            |  |   |              |
|------------|--|---|--------------|
| H          | DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074) | AJS   | 08.08.20     |
| G          | REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY  | DC  | 07.07.31     |
| F          | ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021   | PH  | 07.01.18     |
| E          | CHANGE TOLERANCE, EASE MANUFACTURE   | PH  | 06.04.25     |
| D          | UPDATE TOLERANCE, CHANGE HOLE SIZE   | PH  | 06.01.23     |
| C          | LENGTHEN AFT EXTENSION   | PH  | 05.09.27     |
| B          | DRAWING UPDATES  | PH  | 05.06.10     |
| A          | NEW ISSUE  | PH  | 05.02.07     |
| REV.       | DESCRIPTION  | BY  | DATE         |
| DESIGN     | PH   | DART AEROSPACE USA, INC<br>PORT HADLOCK, WA   |              |
| DRAWN      | AJS  |   |              |
| CHECKED    |  | DRAWING NO.   | REV. H       |
| MFG. APPR. |  | D3391   | SHEET 1 OF 8 |
| APPROVED   |  | TITLE   | SCALE        |
| DE APPR.   |  | 412 FLOAT SKIDTUBE  | NTS          |
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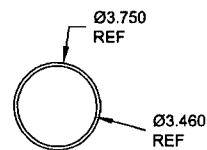




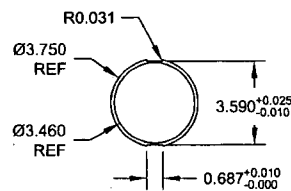
**D3391-1 CUTTING DETAIL**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



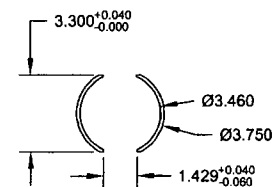
**D3391-011/-021 BENDING DETAIL**  
(MAKE FROM D3391-1)



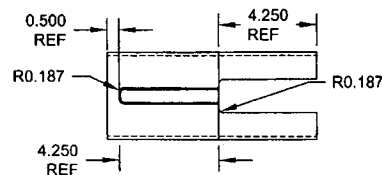
**SECTION A-A**  
SCALE 2X



**SECTION B-B**  
SCALE 2X



**SECTION C-C**  
SCALE 2X

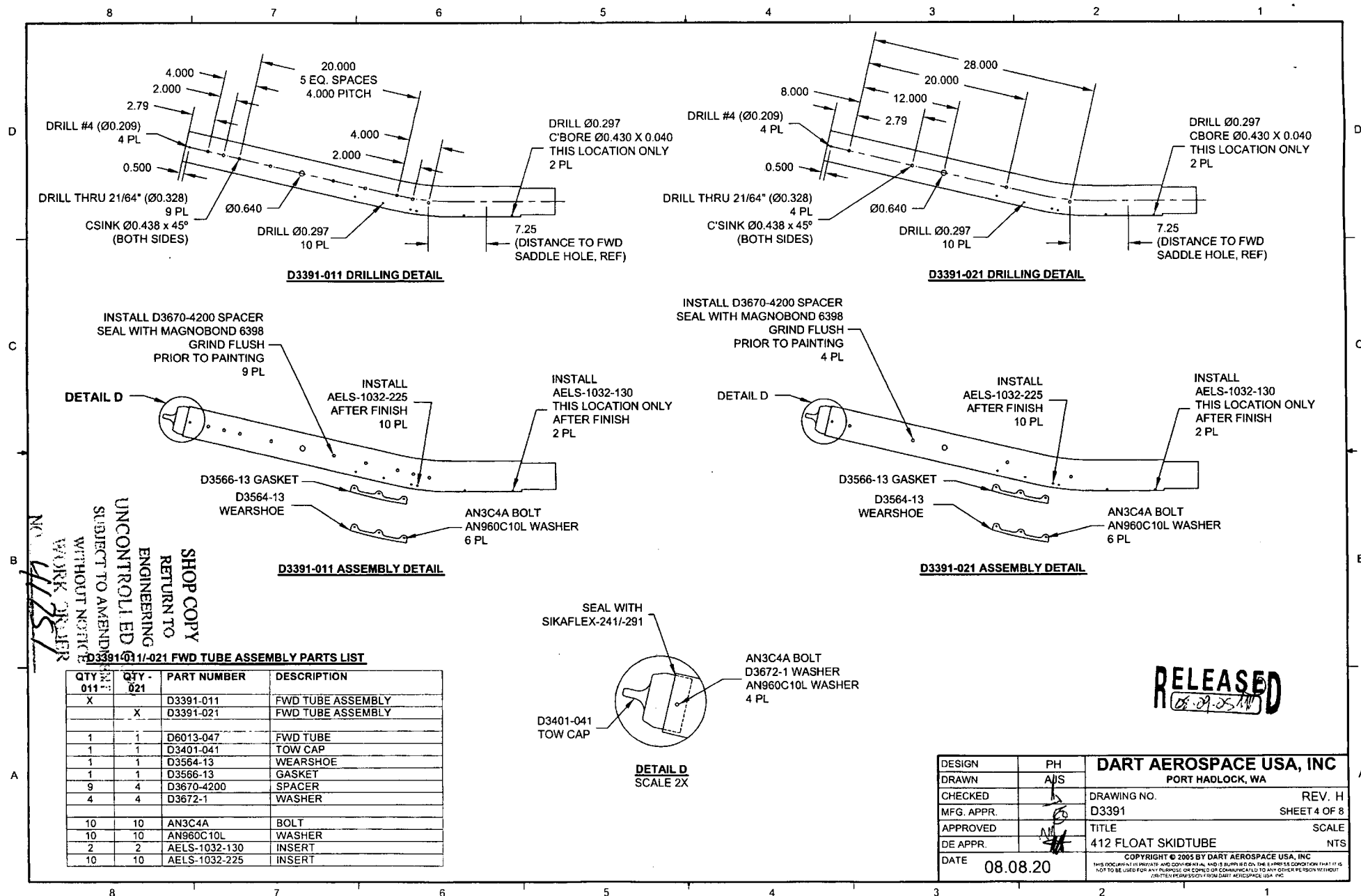


**VIEW Z-Z**  
SCALE 2X

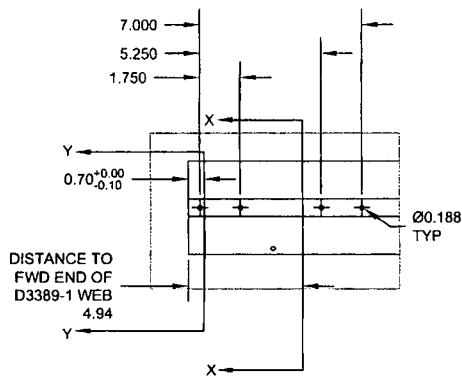
**RELEASED**  
08-05-11

|            |          |   |              |
|------------|----------|---|--------------|
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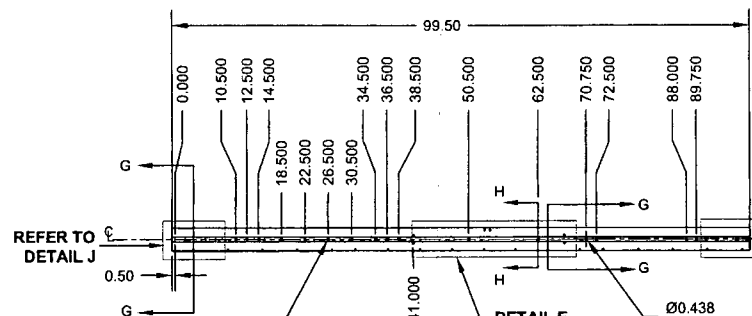


8 7 6 5 4 3 2 1



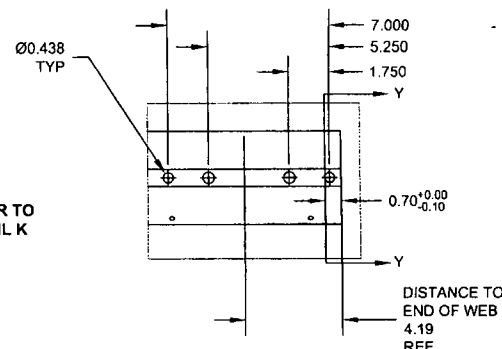
DETAIL J  
SCALE 4X

DRILL THRU 21/64" (Ø0.328)  
CSINK Ø0.438 X 45° (BOTH SIDES)  
12 PL

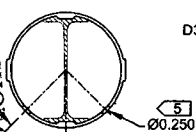


D3391-013 ASSEMBLY DETAIL

REFER TO  
DETAIL K

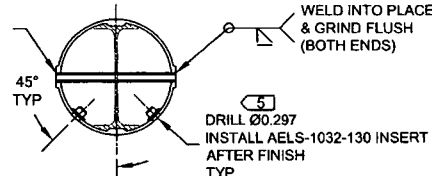


DETAIL K  
SCALE 4X



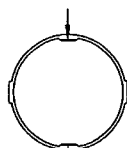
SECTION G-G  
SCALE 5X

INSTALL  
D3681-1 SPACER

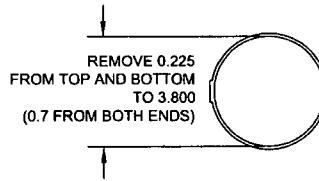


SECTION H-H  
SCALE 5X

REMOVE 0.030  
FROM TOP AND BOTTOM  
TO 3.610

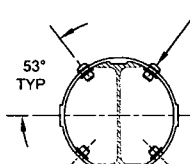


SECTION X-X  
SCALE 5X



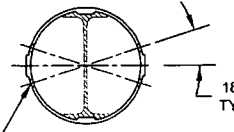
SECTION Y-Y  
SCALE 5X

DRILL Ø0.297  
INSTALL AELS-1032-130 INSERT  
MS27039C1-09 SCREW  
D3672-1 WASHER  
AN960C10L WASHER  
AFTER FINISH  
4 PL



SECTION M-M  
SCALE 5X

DRILL Ø0.250  
4 PL

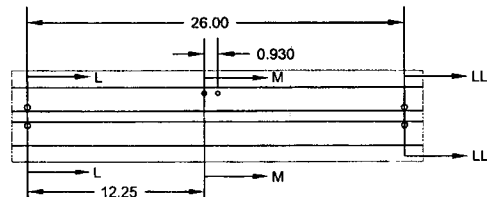


SECTION LL-LL  
SCALE 5X

RELEASED

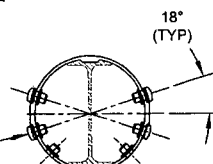
D3391-013 MID TUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER   | DESCRIPTION       |
|-----|---------------|-------------------|
| X   | D3391-013     | MID TUBE ASSEMBLY |
| 1   | D2500-1-100   | EXTRUSION         |
| 1   | D3389-1       | WEB               |
| 4   | D3672-1       | WASHER            |
| 4   | D3672-3       | WASHER            |
| 12  | D3681-1       | SPACER            |
| 24  | AELS-1032-130 | INSERT            |
| 4   | ALS4-428-165  | INSERT            |
| 4   | AN960C10L     | WASHER            |
| 4   | AN960C416L    | WASHER            |
| 4   | MS27039C1-09  | SCREW             |
| 4   | MS27039C4-08  | SCREW             |



DETAIL E  
SCALE NONE

DRILL Ø0.391  
INSTALL ALS4-428-165 INSERT  
MS27039C4-08 SCREW  
D3672-3 WASHER  
AN960C416L WASHER  
AFTER FINISH  
4 PL



SECTION L-L  
SCALE 5X

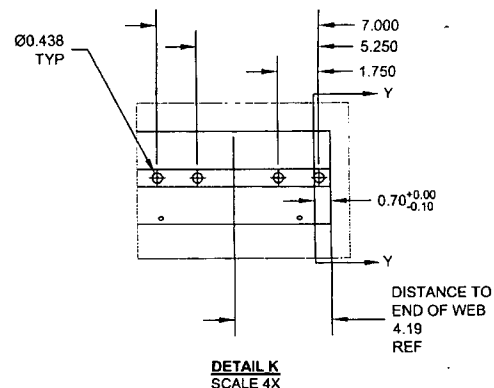
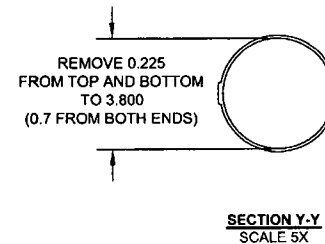
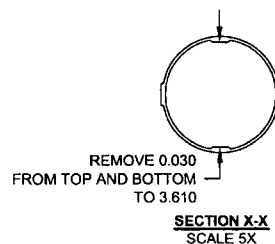
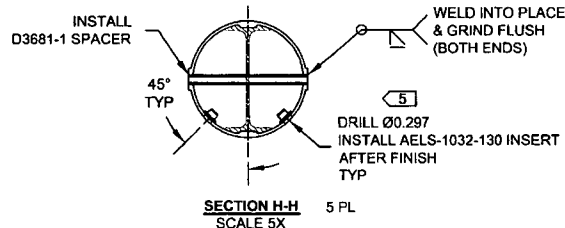
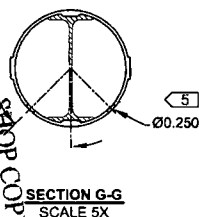
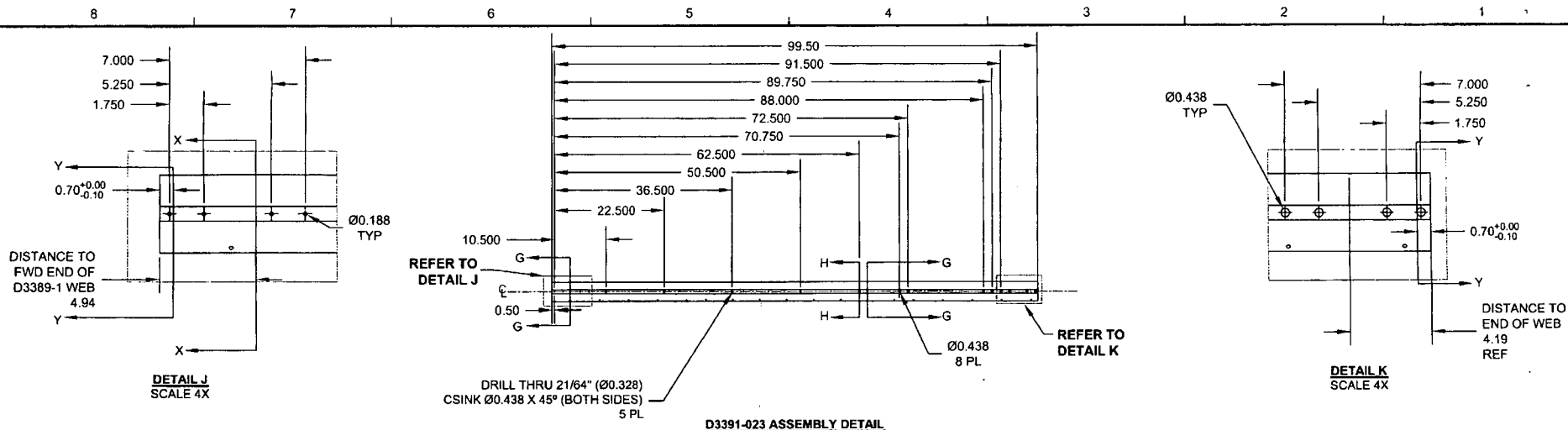
D3391-013 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

|            |          |   |              |
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#### D3391-023 MID TUBE ASSEMBLY PARTS LIST

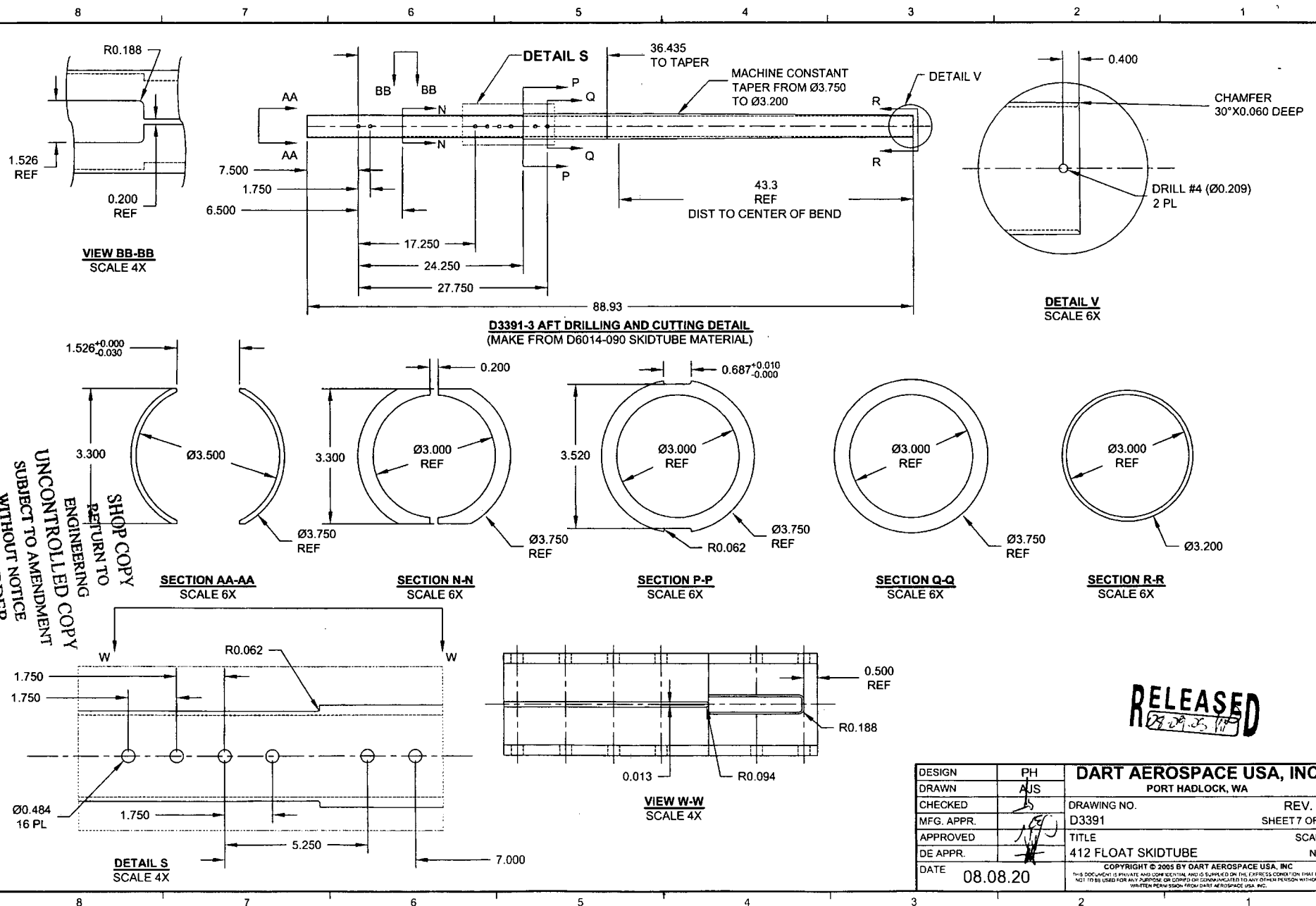
| QTY | PART NUMBER   | DESCRIPTION       |
|-----|---------------|-------------------|
| 1   | D3391-023     | MID TUBE ASSEMBLY |
| 1   | D2500-1-100   | EXTRUSION         |
| 1   | D3389-1       | WEB               |
| 5   | D3681-1       | SPACER            |
| 20  | AELS-1032-130 | INSERT            |

#### D3391-023 MID TUBE ASSEMBLY

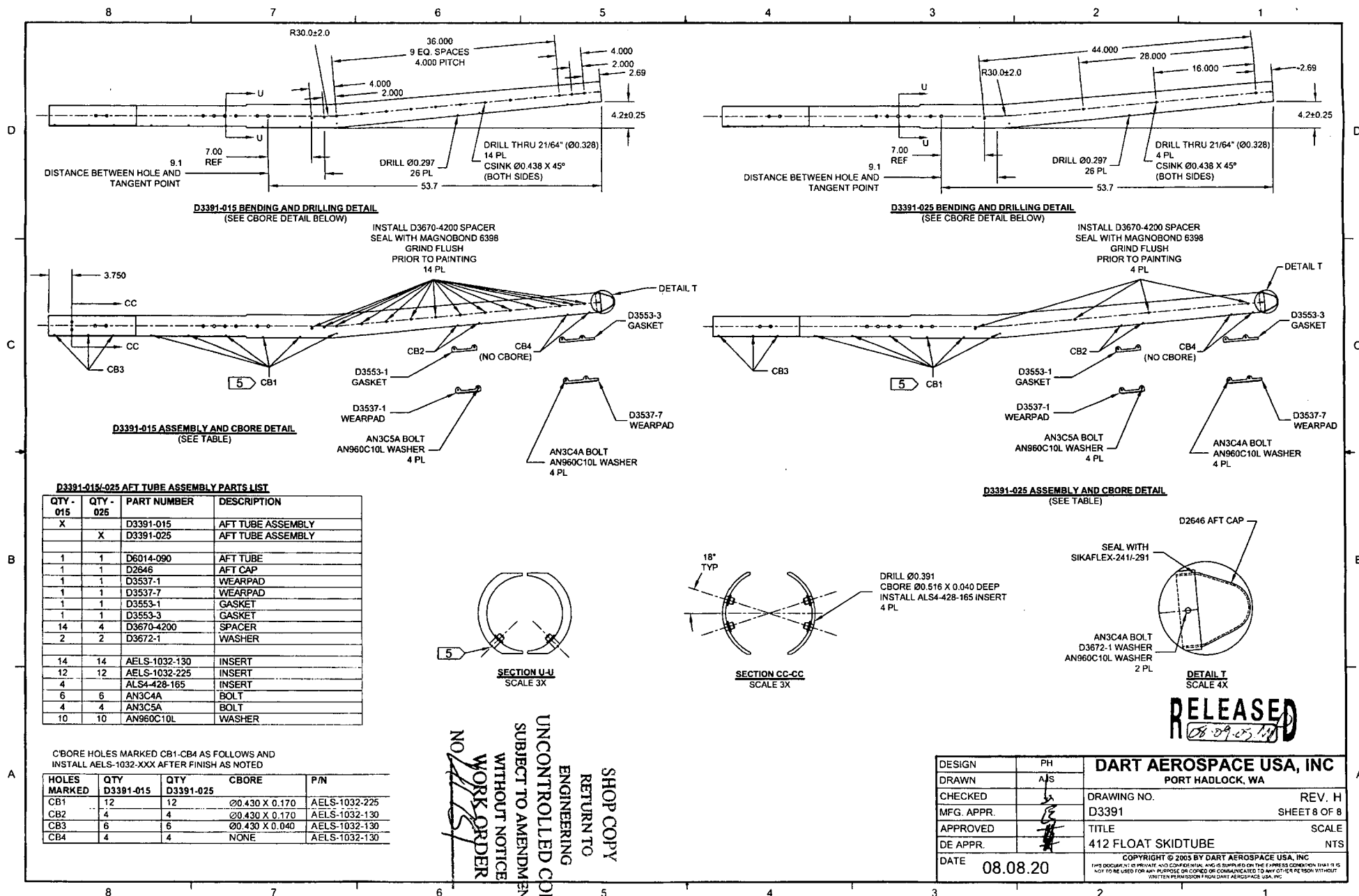
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

|            |          |   |              |
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| MFG. APPR. |          | D3391   | SHEET 6 OF 8 |
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| MFG. APPR. |          | D3391   | SHEET 7 OF 8 |
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## Jason Murdoch

---

**From:** Peter Hum [phum@dartaero.com]  
**Sent:** September 22, 2008 11:01 AM  
**To:** 'Jason Murdoch'  
**Cc:** 'L Lacelle'; 'Mike Petsche'  
**Subject:** RE: tri-beam mid tube

Jason,

Sorry for not getting back to you sooner. Late last week I had a look at the affected mid tubes (I think there were 5 or 6 of them).

With reference to Section Y-Y of D3391 Rev H (page 5 and 6), nominally this section is 0.70 (+0.00/-0.10) from the skidtube ends. It is acceptable (for the affected batches only) to have this depth to be 0.800" (+0.000).

Anything above 0.800", I would recommend that the part be scrapped.

Peter

**From:** Jason Murdoch [mailto:jmurdoch@dartaero.com]  
**Sent:** Monday, September 22, 2008 10:47 AM  
**To:** 'Peter Hum (E-mail)'  
**Cc:** 'L Lacelle'  
**Subject:** tri-beam mid tube

Hi Petey,  
Have you decided weather or not the tri-beam mid-tubes are salvageable or not?  
Dan P wants to know, and if they are no good I would like e-mail confirmation.  
Thanks,

Jason Murdoch

**Qc. Coordinator**  
jmurdoch@dartaero.com

NO. 174

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: 41748  
Part number: D339 1023  
Description: Mid tube  
Welding Process: Tig[☒] Mig[ ]  
Base material: Aluminium  
Current: AC[☒] DC[ ]

TEST REQUIREMENTS AND RESULTS

Visual:  
Penetration:

pass[☒] fail[ ]  
pass[☒] fail[ ]

UNACCEPTABLE

Cracks:  
Undercut:  
Pin holes:  
Overlap (cold lap)  
Porosity (surface):  
Coloration:

pass[☒] fail[ ]  
pass[☒] fail[ ]  
pass[☒] fail[ ]  
pass[☒] fail[ ]  
pass[☒] fail[ ]  
pass[☒] fail[ ]

Qualifier Det. Dinal. Date of Test Coupon 080924  
Welder Barclay Elliott Date of Test Coupon 08-09-24

The above named individual is qualified in accordance with AWS D17.1.2001 to weld